UNITED STATES PATENT AND TRADEMARK OFFICE

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09/685,052	10/06/2000	Brian Wesley Damon	LE9-99-149	3140

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EXAMINER
THOMPSON, JAMES A

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2624	

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 February 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-6,9,11,12 and 14-19* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-6,9,11,12 and 14-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>06 October 2000</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's remarks filed 22 February 2005 and along with the amendments to the claims have been fully considered. A discussion of the rejections of the claims based on prior art is given in detail below.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3.   Claims 14-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "said electronic printhead skew correction" in lines 6-7. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1, 4, 9 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshida (US Patent 5,719,680).

Regarding claim 1: Yoshida discloses a method for reducing the occurrence of print artifacts in an imaging machine comprising the steps of applying electronic printhead skew correction to image data (column 2, lines 15-17 of Yoshida) corresponding to at least one of a plurality of image planes (column 2, lines 29-32 of Yoshida) to generate skew corrected image data (column 2, lines 19-22 of Yoshida); and applying an associated halftone screen (yellow halftone screen) to said skew corrected image (column 2, line 64 to column 3, line 2 of Yoshida) to reduce distortion which would be introduced by use of said associated halftone screen prior to said electronic printhead skew correction (column 3, lines 5-7 and lines 19-26 of Yoshida). The yellow halftone screen is applied (column 2, line 64 to column 3, line 2 of Yoshida). The magenta head, and thus the magenta halftone screen, is skew corrected (column 3, lines 19-25 of Yoshida) such that said magenta halftone screen is in the correct alignment with the yellow halftone screen (column 3, lines 25-28 of Yoshida), thus reducing any associated distortion that would have otherwise been present prior to skew correction.

Regarding claim 4: Yoshida discloses a method for reducing the occurrence of print artifacts in an imaging machine, comprising the steps of determining which of a plurality of printhead units require printhead skew correction (column 2, lines 15-17 of Yoshida); receiving continuous tone data to be printed (column 2, lines 17-19 of Yoshida); generating from said continuous tone data a plurality of image bytemaps (column 2, lines 12-14 and lines 17-18 of Yoshida), each of said plurality of image bytemaps corresponding to a respective one of a plurality of image planes (column 2, line 64 to column 3, line 5

of Yoshida) and to a respective one of said plurality of printheads (column 2, lines 29-32 of Yoshida); and applying electronic printhead skew correction (figure 4 and column 2, lines 19-22 of Yoshida) to each image bytemap associated with a printhead unit requiring printhead skew correction (column 2, lines 58-63 of Yoshida) to generate a corresponding skew corrected image bytemap (column 2, lines 19-22 of Yoshida). Since image data is supplied for printing (column 2, lines 17-19 of Yoshida) and there are a plurality of print heads (column 2, lines 59-61 of Yoshida), then there are inherently a plurality of image bytemaps, since each bytemap is the data that each corresponding print head needs to print.

Yoshida further discloses applying an associated halftone screen to each of said corresponding skew corrected image bytemap and to each of said plurality of image bytemaps not receiving application of electronic printhead skew correction to form corresponding halftoned image data (column 3, lines 16-18 of Yoshida). Since the dot data for the print heads is supplied to the LED heads (column 3, lines 16-18 of Yoshida), it is inherent that an associated halftone screen is applied to each of the bytemaps since said associated halftone screens are required for determining print dot locations for each printed color. In order to print the image, said associated halftone screens inherently have to be applied to each color that is to be printed, which would therefore include both the skew corrected image bytemaps and the image bytemaps not receiving application of electronic printhead skew correction.

Yoshida further discloses serializing each of said corresponding halftoned image data to a respective one of said plurality of printhead units (column 3, lines 14-18 of Yoshida).

The data supplied to the print heads must inherently be halftone data in order for the print heads to print the image (column 3, lines 16-22 of Yoshida).

Regarding claim 9: Yoshida discloses a method for reducing the occurrence of print artifacts in an imaging machine, comprising the steps of determining which of a plurality of printhead units require printhead skew correction (column 2, lines 15-17 of Yoshida); receiving continuous tone data to be printed (column 2, lines 17-19 of Yoshida); and generating from said continuous tone data a plurality of image bytemaps (column 2, lines 12-14 and lines 17-19 of Yoshida), each of said plurality of image bytemaps corresponding to a respective one of a plurality of image planes (column 2, line 64 to column 3, line 5 of Yoshida) and to a respective one of said plurality of printheads (column 2, lines 29-32 of Yoshida); and establishing at least one halftone screen (figure 5 and column 2, lines 18-22 of Yoshida). Supplying data to a print head (figure 5 and column 2, lines 21-22 of Yoshida) inherently requires a halftone screen in order to obtain the print dot locations.

Yoshida further discloses, for each of said plurality of image planes associated with a printhead requiring printhead skew correction, shifting a starting point of application of said at least one halftone screen to the corresponding image bytemap in a direction opposite to and of a magnitude equal to a shift direction and shift magnitude of an electronic printhead skew correction which is to be applied (column 3, lines 19-28 of Yoshida). To correct the skew of the magenta head, the print head position is shifted to compensate (column 3, lines 19-25 of Yoshida) and is thus correctly superimposed on the yellow image (column 3, lines 25-28 of Yoshida). Printing the dots for the

magenta head (column 3, lines 20-25 of Yoshida) inherently requires a halftone screen in order to determine the location of the printed dots. Since the skew is corrected (column 3, line 19 of Yoshida) and the magenta head is thus properly aligned with the yellow image (column 3, lines 27-28 of Yoshida), then the starting point of said halftone screen must inherently be shifted in a direction opposite to and of a magnitude equal to a shift direction and shift magnitude of an electronic printhead skew correction in order to properly compensate for the amount of skew.

Yoshida further discloses applying said at least one halftone screen to said corresponding image bytemap (column 2, lines 17-22 of Yoshida). The image data for each print head (column 2, lines 17-19 of Yoshida) constitutes an image bytemap. A halftone screen is inherently required in order for each print head to print based on said image data.

Yoshida further discloses applying said electronic printhead skew correction to the halftone image bytemap of the first applying step (column 2, lines 15-17 of Yoshida); and serializing the halftoned image bytemap of the second applying step to the respective one of said plurality of printhead units (column 3, lines 14-18 of Yoshida).

Regarding claim 14: Yoshida discloses a method for reducing the occurrence of print artifacts in an imaging machine comprising the steps of applying an associated, pre-compensated halftone screen (yellow halftone screen) (column 2, line 64 to column 3, line 2 of Yoshida) to image data (column 2, lines 15-17 of Yoshida) corresponding to at least one of a plurality of image planes (column 2, lines 29-32 of Yoshida) to reduce halftone noise introduced by electronic printhead skew

correction (column 3, lines 5-7 and lines 19-28 of Yoshida); and applying electronic skew correction (column 2, lines 19-22 of Yoshida) to data resulting from said applying said pre-compensated halftone screen (column 3, lines 19-28 of Yoshida). The yellow halftone screen is applied (column 2, line 64 to column 3, line 2 of Yoshida). The magenta head, and thus the magenta halftone screen, is skew corrected (column 3, lines 19-25 of Yoshida) such that said magenta halftone screen is in the correct alignment with the yellow halftone screen (column 3, lines 25-28 of Yoshida), thus reducing any associated distortion that would have otherwise been present prior to skew correction.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 2, 5-6, 15 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida (US Patent 5,719,680) in view of Cullen (US Patent 5,854,854) and Kamitani (US Patent 6,327,385 B1).

Regarding claims 2 and 15: Yoshida does not disclose expressly adding text characters to said skew corrected image data to form a composite bit map; dividing said composite bit map into a plurality of blocks; identifying text characters which bridge adjoining of said blocks; associating said

identified text characters with a respective one of said plurality of blocks; and shifting an entirety of said each of said identified text characters by a skew correction factor associated with said respective one of said plurality of blocks.

Cullen discloses adding text characters to said skew corrected image data to form a composite bit map (figure 13 and column 4, lines 11-14 of Cullen); dividing said composite bit map into a plurality of blocks (column 4, lines 5-8 of Cullen); identifying text characters of each of said blocks (column 5, lines 46-55 of Cullen); associating said identified text characters with a respective one of said plurality of blocks (column 5, lines 35-36 and lines 46-49 of Cullen); and shifting an entirety of said each of said identified text characters by a skew correction factor associated with said respective one of said plurality of blocks (column 5, lines 53-55 of Cullen). Each rectangle of the composite document image is skew corrected based on the associated skew angle (column 5, lines 53-55 of Cullen). The correction by said skew angle is the skew correction factor associated with a particular rectangular block.

Yoshida and Cullen are combinable because they are from the same field of endeavor, namely skew correction for image print data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the method of correcting for the skew of text, as taught by Cullen, to the general skew correction method taught by Yoshida. The motivation for doing so would have been to reduce the amount of required computer memory and increase the efficiency of the image processing (column 5, lines 22-27 of Cullen). Therefore, it would have been obvious to combine Cullen with Yoshida.

Yoshida in view of Cullen does not disclose expressly identifying text characters which bridge adjoining of said blocks; and associating said identified text with a respective one of said plurality of blocks.

Kamitani discloses identifying text characters which adjoin each other (figure 5 and column 6, lines 39-49 of Kamitani); and associating each character with a respective portion (figure 7a and column 7, lines 28-32 and lines 36-43 of Kamitani).

Yoshida in view of Cullen is combinable with Kamitani because they are from the same field of endeavor, namely correction of image print data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to detect characters which adjoin each other, as taught by Kamitani, which would result in a character adjoining two of said blocks taught by Cullen, and then separating each character into their respective portions, as taught by Kamitani, thus associating said identified text characters with a respective one of the blocks taught by Cullen. The motivation for doing so would have been to correct image data for the case of overlapping characters (column 1, lines 62-67 of Kamitani). Therefore, it would have been obvious to combine Kamitani with Yoshida in view of Cullen to obtain the invention as specified in claims 2 and 15.

Regarding claim 5: The arguments regarding claim 2 are incorporated herein. Since there are a plurality of image bytemaps (column 2, lines 12-14 and lines 17-18 of Yoshida), each of said bytemap corresponding to a respective one of a plurality of image planes (column 2, line 64 to column 3, line 5 of Yoshida), then it is inherent that the text characters which are added to the skew corrected image data would therefore be

added to at least one of said plurality of image bytemaps to generate at least one composite bytemap.

Regarding claim 6: Yoshida discloses a method for reducing the occurrence of print artifacts in an imaging machine, comprising the steps of determining which of a plurality of printhead units require printhead skew correction (column 2, lines 15-17 of Yoshida); receiving continuous tone data to be printed (column 2, lines 17-19 of Yoshida); and generating from said continuous tone data a plurality of image bytemaps (column 2, lines 12-14 and lines 17-18 of Yoshida), each of said plurality of image bytemaps corresponding to a respective one of a plurality of image planes (column 2, line 64 to column 3, line 5 of Yoshida) and to a respective one of said plurality of printheads (column 2, lines 29-32 of Yoshida), wherein at least one of said plurality of image bytemaps corresponds to a printhead which requires printhead skew correction (column 2, lines 59-63 of Yoshida). Since image data is supplied for printing (column 2, lines 17-19 of Yoshida) and there are a plurality of print heads (column 2, lines 59-61 of Yoshida), then there are inherently a plurality of image bytemaps, since each bytemap is the data that each corresponding print head needs to print.

Yoshida does not disclose expressly that at least one of said plurality of image bytemaps includes text characters; dividing said composite bit map into a plurality of blocks; assigning a skew correction factor to each of said plurality of blocks; identifying characters which bridge adjoining of said blocks; associating each of said identified text characters with a respective one of said plurality of blocks; and shifting an entirety of said each of said identified text characters by a

skew correction factor associated with said respective one of said plurality of blocks.

Cullen discloses that the image bytemap includes text characters (figure 13 and column 4, lines 11-14 of Cullen); dividing said composite bit map into a plurality of blocks (column 4, lines 5-8 of Cullen); assigning a skew correction factor to each of said plurality of blocks (column 5, lines 46-48 of Cullen); identifying text characters of each of said blocks (column 5, lines 46-55 of Cullen); associating said identified text characters with a respective one of said plurality of blocks (column 5, lines 35-36 and lines 46-49 of Cullen); and shifting an entirety of said each of said identified text characters by a skew correction factor associated with said respective one of said plurality of blocks (column 5, lines 53-55 of Cullen). Each rectangle of the composite document image is skew corrected based on the associated skew angle (column 5, lines 53-55 of Cullen). The correction by said skew angle is the skew correction factor associated with a particular rectangular block.

Yoshida and Cullen are combinable because they are from the same field of endeavor, namely skew correction for image print data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the method of correcting for the skew of text, as taught by Cullen, to the general skew correction method taught by Yoshida. The motivation for doing so would have been to reduce the amount of required computer memory and increase the efficiency of the image processing (column 5, lines 22-27 of Cullen). Therefore, it would have been obvious to combine Cullen with Yoshida.

Yoshida in view of Cullen does not disclose expressly identifying text characters which bridge adjoining of said blocks; and associating said identified text with a respective one of said plurality of blocks.

Kamitani discloses identifying text characters which adjoin each other (figure 5 and column 6, lines 39-49 of Kamitani); and associating each character with a respective portion (figure 7a and column 7, lines 28-32 and lines 36-43 of Kamitani).

Yoshida in view of Cullen is combinable with Kamitani because they are from the same field of endeavor, namely correction of image print data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to detect characters which adjoin each other, as taught by Kamitani, which would result in a character adjoining two of said blocks taught by Cullen, and then separating each character into their respective portions, as taught by Kamitani, thus associating said identified text characters with a respective one of the blocks taught by Cullen. The motivation for doing so would have been to correct image data for the case of overlapping characters (column 1, lines 62-67 of Kamitani). Therefore, it would have been obvious to combine Kamitani with Yoshida in view of Cullen to obtain the invention as specified in claim 6.

Further regarding claims 17-19: Since the entire identified text character is associated with a respective one of said plurality of blocks and shifted by a skew correction factor, as recited in claims 2, 5 and 6, from which claims 17, 18 and 19 respectively depend, then clearly the minority portion of each text character located in adjoining of said blocks is shifted.

8.   Claims 11-12 are rejected under 35 U.S.C. 103(a) as being
unpatentable over Yoshida (US Patent 5,719,680) in view of
Cullen (US Patent 5,854,854) and Saund (US Patent 5,835,241).

Regarding claim 11: Yoshida discloses a method for
reducing the occurrence of print artifacts in an imaging
machine, comprising the steps of determining which of a
plurality of printhead units require printhead skew correction
(column 2, lines 15-17 of Yoshida); receiving continuous tone
data to be printed (column 2, lines 17-19 of Yoshida);
generating from said continuous tone data a plurality of image
bytemaps (column 2, lines 12-14 and lines 17-18 of Yoshida),
each of said plurality of image bytemaps corresponding to a
respective one of a plurality of image planes (column 2, line 64
to column 3, line 5 of Yoshida) and to a respective one of said
plurality of printheads (column 2, lines 29-32 of Yoshida),
wherein at least one of said plurality of image bytemaps
corresponds to a printhead which requires printhead skew
correction (column 2, lines 59-63 of Yoshida); and applying
electronic printhead skew correction (figure 4 and column 2,
lines 19-22 of Yoshida) to each image bytemap associated with
each said printhead unit which requires said printhead skew
correction (column 2, lines 58-63 of Yoshida). Since image data
is supplied for printing (column 2, lines 17-19 of Yoshida) and
there are a plurality of print heads (column 2, lines 59-61 of
Yoshida), then there are inherently a plurality of image
bytemaps, since each bytemap is the data that each corresponding
print head needs to print.

Yoshida does not disclose expressly that at least one of
said plurality of image bytemaps includes text characters;
dividing said composite bit map into a plurality of blocks;

assigning a skew correction factor to each of said plurality of blocks; identifying a vertical centerline of said each of said text characters; associating said vertical centerline of said each of said text characters with a respective one of said plurality of blocks; and, for each text character bridging a block boundary between an associated block and an adjacent block, performing the step of shifting a minority portion of said each text character located in said adjacent block not present in said associated block by an amount corresponding to a difference between a skew correction factor corresponding to said associated block and a skew correction factor corresponding to said adjacent block.

Cullen discloses that the image bytemap includes text characters (figure 13 and column 4, lines 11-14 of Cullen); dividing said composite bit map into a plurality of blocks (column 4, lines 5-8 of Cullen); assigning a skew correction factor to each of said plurality of blocks (column 5, lines 46-48 of Cullen); identifying a rectangle of said each of said text characters (column 5, lines 33-36 of Cullen); and associating said rectangle of said each of said text characters with a respective one of said plurality of blocks (column 5, lines 46-48 of Cullen). Each rectangle of the composite document image is skew corrected based on the associated skew angle (column 5, lines 53-55 of Cullen). The correction by said skew angle is the skew correction factor associated with a rectangle.

Cullen further discloses that each rectangular block is corrected for the corresponding skew correction (column 14, lines 51-57 of Cullen). Therefore, if there is a text character bridges a block boundary between an associated block and an adjacent block, then the portion of said character in the

associated block will inherently be skew corrected by the skew
correction performed for said associated block and the portion
of said character in the adjacent block will inherently be skew
corrected by the skew correction formed for said adjacent block.

Cullen does not disclose expressly using a vertical
centerline instead of a rectangle for the steps of identifying
and associating. However, using a vertical centerline instead
of a rectangle would have been an obvious design choice to one
of ordinary skill in the art since a vertical centerline can
also be used to measure an angle, such as a skew angle,
associated with a region. The use of vertical centerline for
the measurement of an angle is an old and well-known method used
in the calculation and manipulation of image regions.

Yoshida and Cullen are combinable because they are from the
same field of endeavor, namely skew correction for image print
data. At the time of the invention, it would have been obvious
to a person of ordinary skill in the art to apply the method of
correcting for the skew of text, as taught by Cullen, to the
general skew correction method taught by Yoshida. The
motivation for doing so would have been to reduce the amount of
required computer memory and increase the efficiency of the
image processing (column 5, lines 22-27 of Cullen). Therefore,
it would have been obvious to combine Cullen with Yoshida.

Yoshida in view of Cullen does not disclose expressly that,
for each text character bridging a block boundary between an
associated block and an adjacent block, performing the step of
shifting a minority portion of said each text character located
in said adjacent block not present in said associated block by
an amount corresponding to a difference between a skew

correction factor corresponding to said associated block and a
skew correction factor corresponding to said adjacent block.

Saund discloses using interpolating image data (column 13,
lines 48-54 of Saund) in order to display said image data in a
properly de-warped image space (column 13, lines 31-34 of
Saund).

Yoshida in view of Cullen is combinable with Saund because
they are from the same field of endeavor, namely the alignment
of image data. At the time of the invention, it would have been
obvious to a person of ordinary skill in the art to interpolate
the image data to correct for warping, as taught by Saund. A
text character bridging a block boundary between an associated
block and an adjacent block would therefore have a minority
portion shifted by an amount corresponding to a difference
between a skew correction factor corresponding to said
associated block and a skew correction factor corresponding to
said adjacent block since the warping, or skew correction,
amount for said minority portion would be an interpolation
between said associated block and said adjacent block. The
motivation for doing so would have been to properly show each
pixel of an image in the transformed image space (column 13,
lines 25-27 of Saund). Therefore, it would have been obvious to
combine Saund with Yoshida in view of Cullen to obtain the
invention as specified in claim 11.

Regarding claim 12: Yoshida discloses applying a halftone
screen to said plurality of image bytemaps (column 2, lines 18-
22 of Yoshida) after the step of applying electronic printhead
skew correction (column 2, lines 15-17 of Yoshida). Supplying
data to a print head (figure 5 and column 2, lines 21-22 of
Yoshida) inherently requires a halftone screen in order to

obtain the print dot locations. Furthermore, since image data is supplied for printing (column 2, lines 17-19 of Yoshida) and there are a plurality of print heads (column 2, lines 59-61 of Yoshida), then there are inherently a plurality of image bytemaps, since each bytemap is the data that each corresponding print head needs to print.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson
Examiner
Art Unit 2624

JAT
19 April 2005

THOMAS D.
LEE
PRIMARY EXAMINER